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# Report of the Governor of Washington Territory, 1879 [with] Report of the Surveyor-General of Washington, 1879

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# REPORT OF THE GOVERNOR OF WASHINGTON TERRITORY.

TERRITORY OF WASHINGTON,  
EXECUTIVE DEPARTMENT,  
*Olympia, October 10, 1879.*

SIR: During the past year this Territory has made material advances in the development of its agricultural, manufacturing, mining, and commercial resources.

Its isolated position, its distance from the great centers of population, the large expenses which must be incurred by those coming hither, and the almost universal misconception existing elsewhere in reference to its climate and productions, and particularly the amount of rainfall, have prevented the rapid growth which has been witnessed in many other Territories. When we take into consideration these retarding influences, the progress made cannot be otherwise than satisfactory and gratifying.

It appears to be almost impossible to enlighten the public mind in regard to the climate and agricultural productions of this Territory. The eye is cast upon the map, and when it is discovered that the Territory is situated between the forty-sixth and the forty-ninth degrees of north latitude, and it is recollected that the northern portion of the State of Maine is intersected by the forty-sixth parallel north, it is immediately assumed that the climate and natural productions of the two localities are similar.

It should, however, be also remembered that all of England is situated north of the northern boundary line of this Territory, and that isothermal lines do not correspond with lines of latitude. When the statement is made that ice and snow are of rare occurrence and almost unknown in Western Washington, it appears to be so incredible to those residing many degrees south of this upon the Atlantic seaboard, or in the Western States where the temperature is at zero or below every winter, that it actually makes no permanent impression upon the mind, although a hesitating belief may be accorded to it at the moment.

I have, therefore, deemed it proper to present the result of recent accurate and reliable meteorological observations taken at Fort Blakely, on Puget Sound, in latitude  $47^{\circ} 36'$  north, which will show clearly and definitely the character of the climate throughout the year.

Time.	Temperature.			Humidity.		
	Highest.	Lowest.	Average.	Rainfall.	Cloudy.	Clear.
1877.						
June .....	80	45	59 $\frac{1}{2}$	3.57	18	12
July .....	88	50	67 $\frac{1}{2}$	0.55	11	20
August .....	86	50	65	1.90	16	15
September .....	86	42	57 $\frac{1}{2}$	4.10	18	12
October .....	84	42	51	3.25	12	19
November .....	59	31	47 $\frac{1}{2}$	8.70	20	10
December .....	56	29	43 $\frac{1}{2}$	4.40	24	10

Time.	Temperature.			Humidity.		
	Highest.	Lowest.	Average.	Rainfall.	Cloudy.	Clear.
1878.						
January .....	52	26	40½	5.98	18	13
February .....	64	32	45½	10.22	19	9
March .....	70	38	50	5.17	14	17
April .....	76	33	52½	2.15	13	17
May .....	80	36	57½	3.25	15	16
June .....	94	43	63	0.36	9	21
July .....	82	50	63½	0.76	5	26
August .....	84	44	62½	0.20	2	29
September .....	86	42	57½	3.35	10	20
October .....	68	34	50½	2.61	14	17
November .....	60	33	46½	9.27	19	11
December .....	56	30	41½	3.27	21	9
1879.						
January .....	50	25	40½	5.85	20	11
February .....	58	28	45½	9.70	17	11
March .....	69	32	47½	13.70	19	11
April .....	70	36	50	4.44	12	19
May .....	80	40	55½	5.00	12	19
June .....	80	42	58½	3.30	17	13
July .....	86	45	61½	2.55	7	21

It will be seen that the lowest temperature during this period of twenty-six months was 25° above zero, in January, 1879, and the next lowest 26° +, in January, 1878. The highest temperature in 1877 was 88°; in 1878, 94°; and in 1879, 86°. The highest monthly average was 67½°, in July, 1877, and the lowest 40½°, in January, 1878. It will also be seen that the annual average rainfall is very little greater than in the Eastern and Western States. From June, 1877, to January, 1879, a period of nineteen months, embracing all of one winter and half of another, there was no snowfall, and in January, February, and March, 1879, only 7½ inches, which disappeared almost as rapidly as it fell. The greatest rainfall is between the months of October and April, although, during this period, it will be seen that the cloudy days are very little in excess of the clear.

The climatic phenomena indicated by these observations are readily accounted for.

A thermal current, known as the Japan Current, having its origin at the equator near the one hundred and thirtieth degree of east longitude, Greenwich, flows northwardly to the Aleutian Islands, where it separates, one branch flowing eastwardly along the peninsula of Alaska, and then southwardly along the coast of British Columbia, Washington Territory, and Oregon. This thermal stream, with its concomitant heated atmospheric current, striking the northwest coast of America, operates powerfully in mitigating a climate which otherwise would be cold and rigorous in the extreme. The effect of these currents upon the western portion of this Territory is the same as the effect of the Gulf Stream upon the northwest coast of Europe. In fact the climate and natural productions of England are essentially the same as those of Western Washington. In addition to this, the prevailing winds in the winter are from the southwest. These warm atmospheric currents, coming from the tropical regions of the Pacific, laden with moisture, meeting the cooler currents from the Coast Range and Cascade Mountains, produce the winter rainfall. These southwest winds also moderate the temperature during the winter.

The prevailing winds in the summer are from the northwest, which is

the cause of the dry, cool weather during that period. The following table shows the rainfall at the points mentioned for the year ending June 30, 1878:

	Inches.
Albany, N. Y. ....	44.50
Chicago, Ill. ....	45.03
Charleston, S. C. ....	68.62
Boston, Mass. ....	54.50
Erie, Pa. ....	50.01
Galveston, Tex. ....	67.47
Lynchburg, Va. ....	50.44
Milwaukee, Wis. ....	48.60
Memphis, Tenn. ....	63.59
Montgomery, Ala. ....	65.84
New Haven, Conn. ....	56.68
Nashville, Tenn. ....	121.92
Portland, Oreg. ....	59.16
Port Blakely, Wash. T. ....	50.03
Vicksburg, Miss. ....	60.26
Wilmington, N. C. ....	84.12

There is a marked difference between the climate of Western and Eastern Washington. In the latter, being that portion of the Territory lying east of the Cascade Mountains, the four seasons are plainly distinguishable. I am unable to present meteorological statistics of this portion of the Territory, and can only say that the temperature is lower in winter and higher in summer, and that the rainfall is about one-half less than on Puget Sound. The average annual temperature is reported as follows: Spring, 52°, summer, 73°, autumn, 53°, and winter, 34°.

#### PRODUCTIONS, ETC.

All the cereals, vegetables, fruits, and berries grown within the temperate zone are raised in this Territory. The average yield per acre of wheat, oats, barley, rye, and vegetables cannot be surpassed in any portion of the United States. The great wheat region is in Eastern Washington. The area of wheat land in the counties of Walla Walla, Columbia, Whitman, Stevens, Yakima, and Klickitat is estimated to be five million acres, with a productive capacity of one hundred million bushels per annum. The average yield of wheat per acre is twenty-five bushels. The present season it is thirty bushels per acre. Many fields have produced more than fifty bushels per acre.

The exportation of wheat from this region during the present year will be more than sixty thousand tons. The only outlet from this portion of the Territory at present is the Columbia River, and the facilities for transportation through this channel are so inadequate that more than twenty thousand tons of wheat are now stored at Walla Walla and other points awaiting shipment.

It is now universally conceded that the Columbia River cannot furnish an outlet for the productions of Eastern Washington and Oregon and Western Idaho until the obstructions at the Dalles, at the Cascades, and at other points are removed.

A canal is now being constructed around the Cascades by the general government, but many years will elapse before uninterrupted steamboat navigation will be secured between the upper waters of the Columbia and the Pacific Ocean, unless more liberal appropriations are made by the government.

It is the duty of the general government to remove these obstructions at the earliest practicable moment. It has, by favorable legislation in regard to the public lands, stimulated and encouraged settlements even in advance of the public surveys.

More than seventy-five thousand inhabitants occupy the valleys of this river and its tributaries above these obstructions. A large proportion are engaged in agricultural pursuits, but are unable to find a market for their products, chiefly owing to those obstructions. Population is daily flowing into this region from all parts of the United States. It has an area of more than one hundred thousand square miles, capable of supporting several million people. When all the facts are fully known to Congress, I feel quite certain that more liberal appropriations will be made for the improvement of this great artery of the north Pacific coast, extending from the ocean one thousand two hundred miles into the interior, and flowing through the finest agricultural and grazing portion of the continent.

The branch line of the Northern Pacific Railroad, when completed across the Cascade Mountains to Puget Sound, will connect the eastern and western sections of this Territory, and furnish means for the transportation of the grain and other products of the former to tide-water, and of the coal, lumber, fish, and other products of the latter to a market in Eastern Washington and Western Idaho.

#### PUGET SOUND.

<sup>1</sup> This remarkable body of water was described by me in my last annual report, and in corroboration of what I then stated I give an extract from the report made by Admiral Charles Wilkes several years since:

Nothing can exceed the beauty of these waters and their safety. Not a shoal exists within the Straits of Juan de Fuca, Admiralty Inlet, or Hood's Canal that can in any way interrupt their navigation by a 74-gun ship. I venture nothing in saying there is no country in the world that possesses waters equal to these. They cover an area of about 2,000 square miles. The shores of all these inlets and bays are remarkably bold; so much so that in many places a ship's side would strike the shore before the keel would touch the ground. The country by which these waters are surrounded is remarkably salubrious, and offers every advantage for the accommodation of a vast commercial and military marine, with convenience for docks, and a great many sites for towns and cities, at all times well supplied with water and capable of being well provided with everything by the surrounding country, which is well adapted for agriculture.

The Straits of Juan de Fuca are 95 miles in length, and have an average width of 11 miles. At the entrance (eight miles in width) no danger exists and it may be safely navigated throughout. No part of the world affords finer inland sounds, or a greater number of harbors, than are found within the Straits of Juan de Fuca, capable of receiving the largest class of vessels, and without a danger in them which is not visible. From the rise and fall of the tides (18 feet) every facility is offered for the erection of works for a great maritime nation. The country also affords as many sites for water-power as any other.

#### EXPORTS.

In addition to the exports of wheat already referred to, there have also been large exports of other cereals, wool, flour, and live stock from Eastern Washington. Large shipments of flour have been made direct from Walla Walla to Liverpool. From the lower counties on the Columbia River there have also been exportations of grain and canned salmon; of the latter, one hundred and sixty thousand cases of forty-eight cans each.

From Puget Sound the exports have been lumber, coal, fish, grain, potatoes, wool, hops, hides, barrels, lime, &c. The export of coal for the past year has been one hundred and ninety thousand tons.

The lumbering interests are somewhat depressed at present, owing to a falling off in the foreign demand. This depression is regarded as temporary only. The quantities exported the past year has been about one hundred and fifty million feet.

## POPULATION.

The population of the Territory on the 1st of May last was 57,764. This shows an increase over the preceding year of 7,273, or about 14 per cent. Immigration has been quite large during the past summer, and the estimated population at present is 61,479. When the Northern Pacific Railroad or some other transcontinental line is completed to this Territory, and our manufacturing, commercial, agricultural, and mining advantages and the excellence and healthfulness of our climate are generally known, population and capital will flow hither and this Territory will become one of the most populous and flourishing portions of the Pacific coast.

The following will show present population and the increase during the past year:

Counties.	878.	1879.	Gain.	Counties.	1878.	1879.	Gain.
Columbia.....	5,820	6,894	1,074	Pierce.....	2,801	3,051	250
Chelalis.....	720	808	88	San Juan.....	700	838	138
Clallam.....	370	469	99	Skamania.....	221	495	274
Clarke.....	4,288	4,294	6	Snohomish.....	1,042	1,080	38
Cowlitz.....	1,783	1,810	27	Stevens.....	846	2,601	1,755
Island.....	600	633	33	Thurston.....	2,971	3,246	275
Jefferson.....	1,577	1,427	*	Wahkiakum.....	569	504	*
Klickitat.....	1,999	2,898	899	Walla Walla.....	5,701	6,215	514
King.....	5,543	5,183	*	Whatcom.....	2,115	2,331	218
Kitsap.....	1,548	1,799	251	Whitman.....	3,709	5,290	1,581
Lewis.....	1,806	2,095	289	Yakama.....	1,711	1,912	201
Mason.....	520	560	40				
Pacific.....	1,411	1,351	*	Total.....	50,511	57,784	7,273

## WEALTH.

*Taxable property in 1878 and in 1879.*

Counties.	1878.	1879.	Counties.	1878.	1879.
Chelalis.....	\$293,918 00	\$304,081 00	San Juan.....	\$154,268 00	\$182,147 00
Clallam.....	132,362 00	154,351 00	Skamania.....	117,519 00	143,703 00
Clarke.....	869,173 00	924,100 00	Snohomish.....	382,219 00	390,754 00
Columbia.....	1,521,434 00	1,948,050 00	Stevens.....	341,652 00	434,306 00
Cowlitz.....	750,200 00	968,170 00	Thurston.....	1,652,848 00	1,627,184 00
Island.....	391,570 00	372,821 00	Wahkiakum.....	144,428 50	153,606 00
Jefferson.....	512,025 00	468,191 00	Walla Walla.....	2,711,010 00	2,971,560 00
King.....	2,242,804 00	1,997,670 00	Whatcom.....	612,202 00	735,003 00
Kitsap.....	989,780 46	1,044,673 00	Whitman.....	819,142 00	1,237,189 00
Klickitat.....	570,313 00	732,737 00	Yakama.....	589,585 00	811,932 00
Lewis.....	668,897 00	743,571 00			
Mason.....	364,138 00	570,331 00	Total.....	18,930,964 96	21,019,832 00
Pacific.....	362,380 00	379,258 00			
Pierce.....	1,736,797 00	1,669,444 00	Increase.....		2,088,867 04

## MINERALS.

Gold, silver, copper, iron, lead, and other minerals exist in the Territory, although their development thus far has been quite limited. Recent discoveries of placer gold, which have been made on the Skagit River, in Western Washington, are now attracting considerable attention. Quartz mining is carried on to some extent in Eastern Washington. The total production of gold during the present year is estimated to be \$300,000.

Deposits of bog iron have recently been found in Jefferson County. It is claimed that the deposits are quite extensive, and that the value of the iron has been fully proven by analysis.

## INDIAN AFFAIRS.

The arrangement made by you in May last with Chief Moses for the transfer of the non-treaty Indians in Eastern Washington from the lands formerly occupied by them to a reservation on the west side of the Okinakane River is almost universally approved by our people and is satisfactory to the Indians. It has removed all danger of collision between the two races at present, and there is a strong probability that we will never again have serious difficulty with the Indians in this Territory.

I have the honor to be, very respectfully, your obedient servant,  
E. P. FERRY, *Governor.*

Hon. CARL SCHURZ,  
*Secretary of the Interior.*

# REPORT

OF THE

## SURVEYOR-GENERAL OF WASHINGTON.

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DEPARTMENT OF THE INTERIOR,  
GENERAL LAND OFFICE,  
Washington, D. C., November 15, 1879.

SIR: Respectfully referring to departmental letter of the 5th September last, requesting this office to instruct the surveyors-general of the Territories to transmit to the department such information as they possess or may be able to obtain relative to the resources and development of the Territories, I have the honor to transmit herewith the report of the United States surveyor-general of Washington Territory upon the resources of that Territory, dated October 9, 1879.

I have the honor to be, very respectfully,

J. M. ARMSTRONG,  
*Acting Commissioner.*

Hon. CARL SCHURZ,  
*Secretary of the Interior.*

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SURVEYOR-GENERAL'S OFFICE, WASHINGTON TERRITORY,  
*Olympia, October 9, 1879.*

SIR: Having just returned from an extensive tour of personal inspection of the surveys, and other interests connected therewith, in the eastern portion of this district, I find your letter of the 8th ultimo, requesting a report from me, for the use of the honorable Secretary of the Interior, of the resources, development, &c., of this Territory, to be transmitted by the 1st instant, or as soon thereafter as possible.

The short time allowed me now for the completion of this work will, I fear, render it quite unsatisfactory to myself, and incomplete and somewhat limited in the information required. I have the honor, however, to submit the following:

### GEOGRAPHICAL DESCRIPTION OF WASHINGTON TERRITORY.

Washington Territory is bounded on the south by the middle channel of the Columbia River up as far as  $46^{\circ}$  north latitude; thence east along this parallel to its intersection with Snake River; thence down Snake River and north on the western boundary line of Idaho Territory, being  $117^{\circ}$  west longitude, to  $49^{\circ}$  north latitude; thence west on the parallel  $49^{\circ}$  north latitude, and down the middle channel of Canal de Haro and Strait of Juan de Fuca to the Pacific Ocean; thence southerly along the east shore of the Pacific Ocean to the mouth of the



Columbia River, longitude  $124^{\circ}$  west of Greenwich, and containing an area of about 78,750 square miles.

This Territory is divided into two divisions by the Cascade Mountains (a continuation of the Sierra Nevada Range), known as Eastern and Western Washington.

These mountains take their name from the Cascades of the Columbia, which cuts its way through them a little east of  $122^{\circ}$  west longitude. The general course of the range is west of north and east of south, and it occupies in width nearly 1 degree of longitude, leaving about  $2\frac{1}{2}$  degrees of longitude for Western and 4 degrees for Eastern Washington, exclusive of the Cascade Mountains.

There are four conspicuous mountains in this range within the limits of the Territory, varying in altitude from 10,000 to 14,000 feet, and of course covered with perpetual snow. They are known by the following names: Mount Adams, Mount Saint Helen's, Mount Rainier, and Mount Baker, Mount Rainier being the highest and Mount Saint Helen's the most symmetrical in its outlines. The average altitude of other portions of the range is about 4,500 to 5,000 feet.

The Olympic or Coast Range, in Western Washington, lying west of Hood's Canal and south of the Strait of Juan de Fuca, contain Mount Olympus, with an altitude of 8,000 feet, also a snow-capped mountain and a most beautiful landmark viewed from the ocean.

Other peaks within this range attain an altitude of from 6,000 to 7,000 feet, and retain their winter coats of snow until July and August each year.

One of the most remarkable features in the physical geography of Western Washington is Puget Sound, the great inland sea, now so popularly known by that name, with a shore line of 1,600 miles in extent, and the water over its entire surface is sufficiently deep to be safely navigated by the largest class of vessels known to the commercial world; free from shoals and rocks, and exempt from dangerous storms throughout the entire year. Admiral Charles Wilkes truthfully states, in his report of this inland sea, that—

I venture nothing in saying there is no country in the world that possesses waters equal to these. The shores of all these inlets and bays are remarkably bold, so much so that in many places a ship's sides would strike the shore before the keel would touch the bottom.

The principal rivers in Eastern Washington are the Columbia, Snake, Yakima, Wenatchie, Spokane, Okinakane, Palouse, Fouchet, Tucannon, Walla Walla, and Klickitat, and all tributaries of the Columbia, the Snake being the largest.

The principal rivers in Western Washington are the Skagit, Stillaguamish, Snohomish, Nooksack, Samish, Dawamish, Puyallup, and Nesqually, all of which rise in the Cascade Mountains and empty into the east side of Puget Sound. These rivers are navigable for light-draught steamboats most of the year from 20 to 60 miles into the interior.

There are also the Lewis and Cowlitz, emptying into the Columbia, and both navigable streams. The Chehalis has its source in the Coast Range and empties into Gray's Harbor on the ocean, and the Willpah into Shoalwater Bay north of the mouth of the Columbia.

#### CLIMATE OF WESTERN WASHINGTON.

Washington Territory has two separate and distinct climates, the western portion being mild and wonderfully uniform during the whole year.

The average temperature during the summer or dry season is about  $65^{\circ}$  and in winter  $38^{\circ}$ . The winter or rainy season commences about the middle of October, often later, and continues until April. The heaviest rains at the commencement and termination of the wet season, during which time it falls more in showers, interspersed with intervals of pleasant weather, while in December, January, and February the rainfall is more continuous and misty. Snow falls sometimes during the winter months, but soon disappears under the influence of the moist atmosphere.

What is known in the same latitude East as cold weather is scarcely ever experienced here. Whenever the thermometer marks a few degrees below the freezing point the weather is generally clear and pleasant, with heavy white frosts during the night, followed by clear days. The coldest hours during the summer months are from 9 to 11 o'clock p. m., always moderating toward morning. When frosts occur during spring or early summer, sufficiently severe in other countries to injure fruit, &c., they are usually followed by heavy fogs along the shores of Puget Sound, and often extending some distance into the interior, so dense that the frost is dissolved by the moisture before the heat of the sun strikes the vegetation, and consequently no injurious results to fruit or vegetables are experienced within these foggy belts. For a few days in summer the mercury sometimes reaches  $90^{\circ}$  between 11 a. m. and 3 p. m., but this is only of short duration, and is always succeeded by cool nights and refreshing sleep.

Generally during the winter months grass remains green and continues to grow, and often flowers are in bloom in the gardens all winter. I have seen several winters here without the formation of ice as thick as window glass, and skating is a rare luxury. The average rainfall on Puget Sound is about 50 inches—much less than at many points on the Mississippi River and along the Atlantic coast in the Southern States.

#### CLIMATE OF EASTERN WASHINGTON.

In this portion of the Territory greater extremes of heat and cold are experienced, and yet compared with the same latitude east, the climate is exceedingly mild, corresponding more with that of Maryland. During July and August the mercury sometimes ascends to  $95^{\circ}$  and  $100^{\circ}$  in the shade, but seldom drops to zero in the winter. During the four seasons of the year the average temperature is, of  $52^{\circ}$  in the spring,  $73^{\circ}$  in summer,  $53^{\circ}$  in autumn, and  $34^{\circ}$  in winter, with some snow, which lasts generally but a few weeks at most.

Stock is seldom fed or sheltered, living through the winter on "bunch grass" and white sage. The annual rainfall south of the Snake River is about 18 inches, increasing gradually north of that point. The summer is always dry from June to September and often until October, insuring to the farmer a most reliable harvest and threshing season for securing his grain. Peach trees thrive well and bear profusely, and corn is raised and matured as far north as the Spokane Valley. Like all other portions of the Pacific coast, a few hundred feet of increased altitude gives a much lower temperature, so that people need only go a few miles during the warmest weather to enjoy the pure, cool, mountain air. In the valleys, however, the nights are sufficiently cool during the summer to insure refreshing sleep.

#### EXTENT OF ARABLE AND TIMBER LANDS.

The different classes of land in Western Washington have been estimated as follows: Timber, 20,000,000 acres; prairie and gravelly plains,

10,000,000 acres; and rich alluvial bottoms, 5,000,000 acres, or a total aggregate of 35,000,000 acres of land. Almost every section of the best timbered land contains more or less rich alluvial land along the streams, and many of the highest hills produce, when cleared of the timber, from two to four tons of hay per acre.

The unparalleled excellence of the Puget Sound timber for ship-building and other purposes is now too well known throughout the markets of the world to require more than a brief mention in this report. Timber can be obtained of almost any required dimensions, either in length or diameter, from the red and yellow firs of the Puget Sound basin and Lower Columbia or its tributaries. These trees grow to an enormous size and height, often 250 to 300 feet high and from 6 to 10 feet in diameter, and generally as straight as an arrow. The varieties rank in the following order, viz: Fir, cedar, hemlock, spruce, maple, alder, ash, and cottonwood, with many other varieties of smaller growth, too numerous to mention in this report. The timber in Eastern Washington, found along the slopes of the mountains, is generally pine, of a scrubby growth, with some belts of tamarack, fir, and cedar.

#### EASTERN WASHINGTON—EXTENT OF ARABLE LANDS.

In the valley of the Columbia, exclusive of the present Indian Reservations and the Blue Mountain district, there are over 500 townships of land. Estimating each township at 22,500 acres, which is 540 acres less than a full township, and the result is 11,250,000 acres. Allowing one-half of this area to be more suitable for pastoral than agricultural purposes, on account of inferior quality and objectionable surface formations, and we have in round numbers 5,625,000 acres of arable land. This at the lowest estimate of 20 bushels per acre (this year the average is over 30 bushels) will yield 112,500,000 bushels or nearly 3,500,000 tons of wheat. This estimate is not based upon rumors or unreliable reports from irresponsible or interested parties, but upon my own personal observations in the field, and the result of my annual tour of inspection through this Territory, during which time I carefully interviewed all the farmers and threshers that I met as to the amount sown, the yield per acre, cost of raising wheat, average price obtained, best quality of wheat land, locality, &c., and I am fully confident that my estimates are under rather than over what this country will produce when generally cultivated.

#### GENERAL DESCRIPTION OF WASHINGTON TERRITORY.

Eastern Washington embraces within its limits the larger portion of what is now and should hereafter be known as the "Valley of the Columbia," consisting of an open hilly country, generally covered with a heavy growth of "bunch grass," which is now extensively known to be the most nutritious feed for stock found among the natural productions of the earth. This grass grows so luxuriantly that in many sections it is cut for hay, yielding from one to two tons per acre. The country is well supplied with springs and creeks, affording an abundance of pure cold water. The streams generally flow to the west, and the valleys increase in depth and diminish in width, as they approach their confluence with the Columbia and Snake Rivers.

Many of these streams afford extensive water-power, and some of them are now utilized, viz, Mill Creek, in Walla Walla County; the Fouchet, Tucannon, and Pataha, Columbia County; the Palouse and Rock

Creek, in Whitman County; Spokane and Colville Rivers, in Stevens County; the Yakima, in Yakima County; and the Klickitat, in Klickitat County; on all of which are now a number of grist mills, in successful operation, and others being erected.

A belt of timber, consisting of pine, tamarack, cedar, and fir, extends along the Cœur d'Alene Mountains (a spur of the Bitter Root Range), running generally northwest and southeast, mostly in Western Idaho; but this timber extends into Washington Territory, south of the Spokane River, crossing Hangman Creek, about 20 miles above its confluence with the Spokane, and continuing in a southwesterly direction, of scattering growth, to Rock Lake. This belt also extends down the Spokane, interspersed with open or prairie land, to the junction of the Spokane and Columbia Rivers. North of the Spokane River the timber is more abundant; also on the Upper Columbia. Walla Walla and Columbia Counties are supplied with timber of the same quality from the Blue Mountains, and Klickitat and Yakima Counties from the Upper Yakima and its tributaries and the Simcoe Mountains along the southern boundary of the Yakima Indian Reservation.

A large extent of country north and west of Snake River and east and south of the Columbia is almost destitute of timber, except narrow belts of aspen, cottonwood, and balm found along the streams.

Along the Columbia River, wherever the hills recede or drop their usual altitude, the almost constantly-prevailing winds—up the river during low-water and the summer months—deposit from the sand-bars below an almost imperceptible drift, which extends from ten to fifteen miles back into the country, according to the surface-formation. This process is continuous; the sand is supplied during high-water in the spring or early summer, and deposited along the bars above the Upper Cascades, and during low-water is taken up by the wind and drifted up the valleys as above described. The particles are so fine that they are not noticed or felt unless one happens to stand on or near the bars where they are first lifted by the wind. Through this cause I can only account for the poorer classes of land found in nearly all valleys along and near the Columbia River—such as the belt north and east of Wallula and about the mouth of the Snake and Yakima Rivers, White Bluffs, and many other localities along the Columbia.

While Western Washington contains a much less area of arable land than the eastern portion of the Territory, yet its proximity to a good market, and the equal certainty of abundant crops, renders it often the first choice of that class of agriculturists desirous of a varied system of farming on a small scale, and a good home market, with abundant feed for stock during the winter months. The valleys of the Columbia, Lewis, Cowlitz, Chehalis, Puyallup, Dawamish, and all other rivers in this portion of the Territory, and many of the higher table-lands, furnish abundant opportunities where any practical, energetic man, with ordinary industry, will reap a remunerative reward.

#### INLAND NAVIGATION.

But few, if any, of the States or Territories in the United States have better natural advantages for the transportation of their productions to market than Washington Territory. Within its limits at present there are over 1,000 miles of inland navigation, so equally distributed that but small portions of the Territory are very remote from navigable waters. However, the obstructions at Priest's Rapids and two or three other points above on the Columbia closes this otherwise important river to navigation for hundreds of miles. The improvement or removal of these

obstructions would render the Columbia navigable for over 700 miles from its mouth, which would prove of incalculable advantage to the whole Territory.

Snake River, which is the principal tributary of the Columbia, drains an area of the best wheat producing countries in Eastern Washington and Western Idaho, and is safely navigable for steamers of 200 or 300 tons capacity for about 150 miles above its confluence with the Columbia, or as far as the mouth of the Clearwater, in west longitude 117°, except during September and October, when the water on several rapids in the lower portion of the river becomes so low that boats of three feet draught cannot pass them with safety. This proves a great inconvenience to both the producer and merchant, as at this season of the year there is always the greatest amount of wheat in the country awaiting shipment to market, and also a general demand for return freights up the river. A judicious expenditure of \$100,000 would remove the most dangerous obstructions and prove of inestimable advantage to this portion of the Territory.

#### RAILROADS.

There are now 230 miles of completed railroads in this Territory—157 miles of the standard gauge and 70 miles of three feet gauge—with now a bright promise of an early completion of the Northern Pacific Railroad from the mouth of Snake River, where the work of grading is already commenced, to Lake Pend d'Oreille, a distance of nearly 200 miles, through a naturally rich and productive country. The early extension of this line across the Cascade Mountains to the waters of Puget Sound is what every true citizen of the Territory earnestly desires. This would thoroughly unite the entire interests of the people, and result in the rapid development of the whole Territory. Other early developments of narrow-gauge railroads, draining the best wheat producing portion of the valley of the Columbia to the present navigable portions of that important river, are already in contemplation by parties fully competent to appreciate their importance and financially able to secure their early completion.

With these all important enterprises on the dawn of development, the future of this Territory is at this time exceedingly bright.

#### MARKET ADVANTAGES.

No other undeveloped portion of the national domain, so rich in all the natural elements for bountiful cereal productions, lies so near the ocean as Washington Territory. This advantageous geographical position alone must place its agricultural lands in the highest rank of valuation. The present great natural channels through which the wheat, wool, and other products of Eastern Washington must seek an outlet to the sea is by the Snake and Columbia Rivers, but even if the present obstructions to navigation were removed from these rivers by the improvement of the rapids and completion of the locks and canals at the Dalles and Cascades, this line alone would prove inadequate as a means of transportation to the ocean to meet the growing wants of the valley of the Columbia when fully developed. Railroads will eventually do the greatest portion of this work.

#### MINERAL RESOURCES.

Coal is our present leading mineral production, and is only found, at this time, in the Puget Sound basin and on some of the tributaries of

the Lower Columbia. No doubt now exists of the extent of the coal fields of Western Washington. The streams show evidence of coal in almost every direction, often cutting through seams of over 20 feet in thickness. The area of this field is over 20,000 square miles.

Mines have been opened and operated at Bellingham Bay, Lake Washington, Renton, Wilkeson, Seateco, and Chehalis, but the Lake Washington mine, in King County, furnishes the greater quantity of coal for shipping, producing, when worked to full capacity, over 600 tons daily. The other mines are comparatively new and as yet undeveloped, but promise well. The principal market is San Francisco.

Limestone is also found extensively, and of excellent quality, on San Juan and Orcas Islands, Puyallup, Touchet, and Grand Ronde Rivers. Copper, lead, and iron ores are known to exist in several localities, but are as yet undeveloped. Gold and silver is found in and near the Cascade Mountains, but still not extensively mined.

#### PRODUCTION OF THE TERRITORY.

Although the climatic distinctions between Eastern and Western Washington are quite marked, the productions of the two sections differ but little. Corn, melons, peaches, and grapes thrive best in the eastern portion, while wheat, oats, barley, hops, and all vegetables yield abundantly, and attain the greatest size and perfection throughout the whole Territory. The western division produces a greater yield of hay per acre, owing to the abundant moisture, while on the east side the great and certain yield of wheat will always be the leading production of that locality. But a few years ago it was not generally known that wheat could be successfully raised in the valley of the Columbia, except along the streams or by artificial irrigation. Experience has, however, clearly demonstrated since that the hills and upper table and even the sagebrush lands produce the best wheat, often yielding from 40 to 60 bushels per acre, and of a quality unsurpassed by any other portion of the world. The abundant prevalence of all the essential elements, such as potash, phosphoric acid, &c., insure the almost unlimited durability of the soil for the growth of wheat.

The yield of wheat this year will exceed 2,000,000 bushels, most of which will be shipped to Portland, Oreg., and from thence to foreign markets.

#### MANUFACTURING INTERESTS.

In the Puget Sound basin this branch of industry is principally confined to lumber. The twelve largest saw-mills have a capacity of from 50,000 to 200,000 feet daily, and the annual production of lumber is from 250,000,000 to 300,000,000 feet, nearly all of which is shipped to San Francisco, South America, and the Sandwich Islands.

The manufacture of staves and furniture is also receiving attention, for which there is abundant material and a good market.

#### POPULATION.

The assessors' returns from the several counties for 1879 show a population of 57,784—exclusive of Indians not taxed—and a gain since 1878 of 7,273. The increase would have been much larger had the question of another Indian war not threatened us last spring.

## ASSESSED VALUATION OF PROPERTY.

The assessed valuation returned this year is \$21,021,832, which is no doubt much below the real value.

I have the honor to be, very respectfully, your obedient servant,

W. McMICKEN,

*Surveyor-General, Washington Territory.*

Hon. J. M. ARMSTRONG,

*Acting Commissioner General Land Office,*

*Washington, D. C.*